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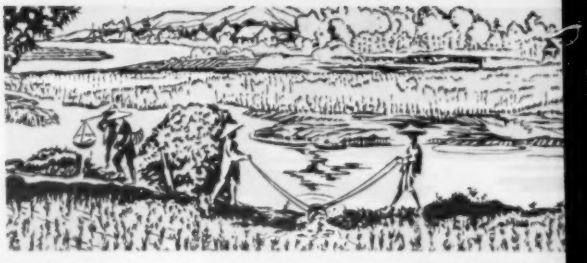

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METHODS TO IMPROVE SKILL IN THE USE OF A GEOGRAPHY VOCABULARY AT THE HIGH SCHOOL LEVEL

MARY VIOLA PHILLIPS
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Reading is a basic learning tool in the geography classroom. Like other means of learning, it is valuable in enriching the experiences of boys and girls and in stimulating their thinking. Success in reading makes an important contribution to competence in geography.

Nearly all reading attitudes and skills have their beginnings in the elementary school. The elementary school teacher, however, cannot possibly teach adequately all the reading skills needed at the high school level. At this level many different aspects of reading such as skimming for specific facts, organizing important ideas into logical sequence, reading critically, and using various methods for attaching new words, are initiated. Consequently, there is a definite need for the high school teacher to continue instruction in reading geographic material and to offer developmental programs in reading.

FINDING OUT HOW STUDENTS READ THE GEOGRAPHY TEXTBOOK AND REFERENCE BOOKS

The geography teacher should analyze the reading skills of his students and find out early in the semester how well they are able to read the geography text and the reference books used in his classes. Of course, he can obtain a fairly comprehensive understanding of their reading level from standardized tests that have been given, but it is useful and important also to know what the students are getting out of the geography books he expects them to read. The following procedure has been useful in finding out how well geography books are read:

Select two or more pages from a geography textbook or reference book that the students have not read. If there are not enough copies of the book, duplicate copies of the article for the class. Work out a set of questions on the article. The questions should be specific ones on the most important ideas, the technical vocabulary, and on conclusions that can be derived from the article. Duplicate enough copies of the questions for every student. Distribute the duplicated materials to the class and direct the students to (1) begin reading when the signal is given, (2) after they have finished reading the article, look at the chalkboard and write down the number they see there (this number will be the time it has taken them to read the article. The teacher should write the number on the chalkboard at ten second intervals), and (3) write answers to the questions.

After the test is completed have the students read their answers to the questions. The students who answer their questions well and with reasonable speed should be called upon to discuss their method of reading.

Informal tests of this type should lead to further instruction in how to read geography textbooks and references. They should be given at frequent intervals. The student's work should be timed and checked for accuracy. When mistakes are found, care should be taken to clear up the difficulties. Each student should be directed to keep a progress chart to show improvement in his reading speed and comprehension. Students at the high school level enjoy watching their own progress from time to time.

Similar informal study-skill tests will give the teacher insight in helping to determine how well the students use an atlas, an almanac, a dictionary, and how well they read pictures, maps, grafs, statistics, charts, and other tools which efficient learning of geography requires.

Materials for the Development of Meaning

Finding out how well students read their geography textbooks, reference books, and other reading materials is not enough; they need instruction in how to read more effectively. A frequent stumbling block to intelligent reading is unfamiliarity with specific words or phrases. Geography like every other curricular area has a vocabulary special to the subject. There are words of wide general useage, such as "cultural," "channel," or "relationships"

which have particular connotations in geography. Further complicating the problem is the similarity in form of many geography words like "capital and capitol," "sight and site," and "straight and strait." Ignorance of the meanings of such words makes many pages of geography unintelligible. Words are symbols only, devoid of meaning, unless in the student's mind there is a concept which he can attach to the symbol. Therefore, the geography teacher should find ways of interesting students in new words and their meanings.

There are numerous resources available to the geography teacher at the high school level who wishes to enrich the experiential background of his students. For instance, first-hand experiences is one of the most effective methods of insuring that new words will be given meaning. Field trips and visits to industries, geographical phenomena and location, and to other community resources related to the content of the course have tremendous value. The student usually remembers what he sees, hears, and feels directly.

Frequently direct experience is either impossible or inefficient. If so, the use of motion pictures, filmstrips and other audio-visual aids for vocabulary development are almost as effective. When previewing any of these aids, the teacher should develop a list of words to be presented to the class prior to their viewing of the film or filmstrip. After the film or filmstrip has been shown, have the students discuss the list of words with reference to the vicarious experience provided by the teaching aid. When properly used, audio-visual aids will give meaning to unfamiliar words and new meanings to old words.

Illustrations in textbooks and reference books, still pictures, maps, charts, grafs, diagrams, models and specimens are valuable resources for developing a geography vocabulary. Students add many words to their vocabulary as they work with or handle manipulative materials.

Creative activities such as individual or group illustrations, geographic layouts, cooperatively developed murals, purposeful construction, club and assembly programs afford opportunities for the development of vocabulary and practice in its use. A tape recorder is another device that may be used to arouse the interests of students in improving their reading abilities. This is an excellent way in which to guide pupils to observation of words in action.

Procedures Used to Promote Skill in the Use of a Geography Vocabulary

A part of geography teaching is to develop in students the habit of skimming a selection for terms needing explanation, guessing their meaning from the context and verifying their guesses by using the dictionary. The following procedure may be used to give the students definite guidance and practice in doing intelligent guessing thru context: (1) show the students how the author may arrange a sentence in order to give a definition of the word. For example, "Tremors, or shaking, can be felt hundreds of miles from the center of the earthquake," or "A long steel tube with a bit, or cutting tool, on the end, is driven down hundreds of feet into the ground." (2) Give the students a list of terms that are probably unfamiliar to most of them and have them write the definition of any of the words they may know. (3) Give the students a list of sentences in which the words are used. Have them read the sentences and try again to define the words with the help of the sentence.

The students will readily discover that they can "guess" several of the meanings from the context. They should be given frequent practice in the use of contextual clues. The teacher, too, should watch for opportunities to discuss new words in context as they occur in each succeeding geography unit.

Pupils also learn the meaning of words thru an understanding of root meanings. Many English words have come from other languages, especially Latin and Greek. A single Latin word or a part of it may serve as the origin or root for several of our words or parts of several words. For example, the Latin word *manus*, meaning hand, serves as the word root in our words manual, manufacture, and manuscript. From a Greek word meaning to write we get the form graph which we find in graphic, telegraph, and other words. Many words are formed by adding a prefix to the front of a shorter word called the root word or stem, and still others are formed by adding a suffix at the end of the root. For example, the root word *port* becomes the word porter by adding the suffix *er*. By adding the prefix *ex*, we have the words export and exporter. Time taken to explain the meaning of a few such words will enable students to develop skill in deriving the meaning of many other words. This like the context clue is an important approach because of its transfer value.

Many of the basic skills necessary for the use of the dictionary have been taught in the elementary grades, but the high school teacher should assume some responsibility for providing practice in the use of the skills. Skill in selecting the appropriate definition from among the several provided and adapting it to the context is largely within the high school teacher's province. At this level, however, the dictionary is more generally used as a final resort or to verify meanings otherwise derived.

A section of the student's notebook devoted to "New Vocabulary" is valuable. The vocabulary list should contain new words related to a unit of work, their definitions, and the words used in sentences. Pictures, drawings, diagrams, cartoons, and newspaper clippings illustrating the words may be included. The students should use the new words whenever needed in report periods, discussion periods, and review periods. Skill will be developed most rapidly with correct useage. Individual or class dictionaries may be made also. In this way the student gradually builds a basic geography vocabulary.

Another way of achieving improvement in vocabulary is to adapt the reading materials to level of reading ability attained by the student. In any group of high school students, even when an attempt has been made at homogeneous grouping, a wide range of reading ability and maturity is found. This wide variation in reading ability makes it necessary to use a variety of reading materials suited to the reading level of the students. The experiences secured from the reading materials helps the students to acquire the background necessary for the reading of more difficult materials. Too puerile accounts, however, are no more to be desired than too advanced. The reading materials included in the classroom library or on the reading table should provide materials challenging to students with superior reading ability as well as readable by those who find reading difficult. The type of challenge necessary for progress in the development of reading skills is provided only when the challenged have some realistic hope for success and achievement.

CONCLUSION

The development of skill in the use of a geography vocabulary as well as other reading skills is the responsibility of the geography teacher. The teaching of these skills cannot be left to chance.

Systematic planning for the practice of skills is necessary to insure addition of new words to the student's vocabulary. Higher levels of skills can be achieved only when proficiency in the earlier levels has been attained. Therefore, teachers at the high school level must first determine the degree of proficiency their students have achieved and then plan for further guidance, practice, and growth. When provision is made for better comprehension of what is read thru the development of vocabulary skills, subject matter attainments in our geography classes will improve.

THE BOMI HILLS STORY

ROBERT J. GOODMAN AND ELIZABETH JOHNSON
Wayne State University, Detroit, Michigan

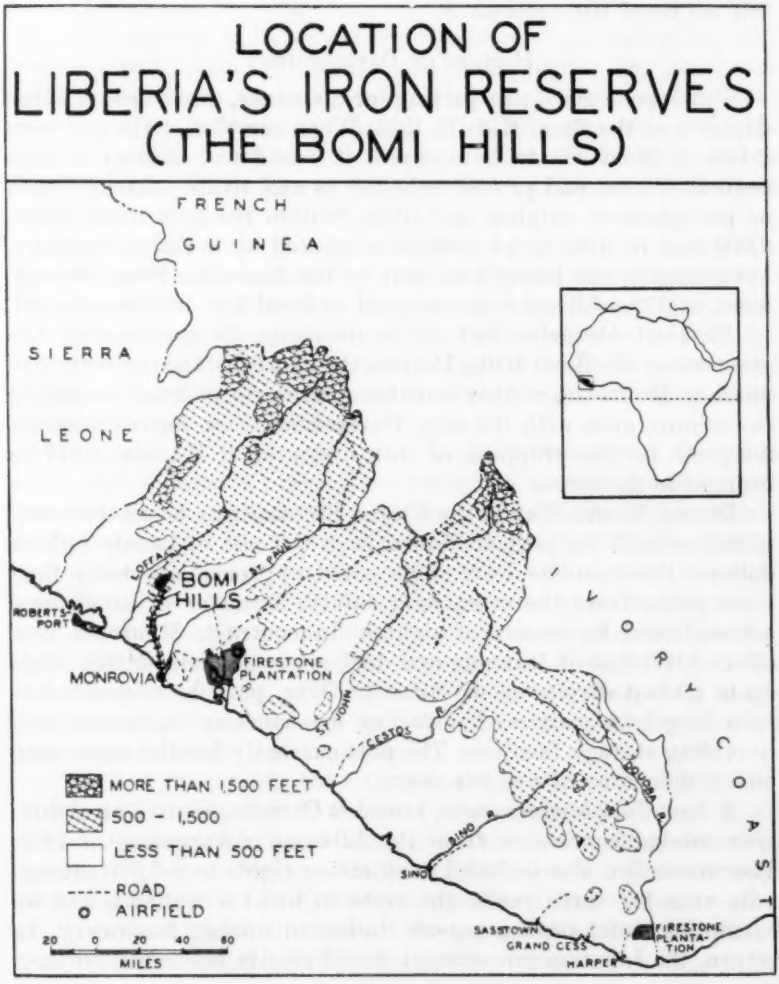
Ask any fifty Americans with average quiz-show knowledge where the richest iron ore in the world is being mined today and you would get a variety of answers ranging from Minnesota to Sweden. In all probability the answers would not include Liberia, the correct response. Few people have heard of the Bomi Hills, a mining concession forty-five miles inland from Monrovia (Fig. 1). Here the average ore has an iron content of 68 per cent, and the richer deposits run as high as 72.4 per cent. The ore is the nearest thing to natural pig iron and is found in hard masses on the surface with no expensive over-burden to be removed.

The development of this super-quality ore has been both recent and rapid. The story is one of building a profitable industry in a place that could be reached only by foot trails ten years ago. Accessibility has been achieved by the construction of a railroad, a motor road, and eighteen concrete bridges in the face of almost unsurmountable barriers. The Bomi Hills story is one of cooperation between two governments and the coupling of native manpower with industrial capital to the advantage of all.

Changes in the Landscape

A new life has been brought to a previously almost uninhabited area. The sounds of trucks, excavating tools, earth moving machinery, men's voices giving commands and the loading of ore on railroad cars must have seemed a frightening invasion of

the quiet unmechanized peace to the occupants of that forested area, whether they were men, birds, or beasts. Change is evident everywhere. New farms have been started. Rice and cassava are growing in abundance. Native towns have grown up near the mines and along the road. Possibly the railroad and the motor



road will prove to be more important to the Liberians than the working of the ore.

How did such an enterprise start? Who was involved? What were the problems which had to be faced and solved? What are some of the results of this new venture towards meeting the world's needs? Can this be an example of American imperialism? How are the Liberian natives treated? Answers to these questions tell the Bomi Hills story.

HISTORY OF DEVELOPMENT

Dutch geologists, prospecting for diamonds, discovered the iron deposits of the Bomi Hills in 1934. When samples of the ore were taken to Monrovia to be assayed, it was found to have a high content of iron, and proved to be low in undesirable elements such as phosphorous, sulphur and silica. Within the next three years, 6,000 feet of drill cores were accumulated by a Dutch company, but pressure was brought to bear by the American State Department, and the Liberian government ordered the drilling stopped.

Physical obstacles had to be overcome to develop the ore reserves of the Bomi Hills. Despite the short distance of forty-five miles to Monrovia, neither a motor road nor a railroad connected the mining area with the city. Furthermore, the harbor was not adequate for the shipping of iron ore, even if the ore could be brought to the coast.

During World War II the United States Army Engineers completely rebuilt the port of Monrovia at the cost of twenty million dollars. Prior to the war, ships could approach no closer than three miles from the coast with safety. Transfer of goods was accomplished by means of lighter. In contrast, Monrovia now offers 1,000 feet of frontage and dock space accommodating ships up to 30-foot displacement. Since the war, port development has been largely a matter of installing ore-handling equipment and providing storage facilities. The port currently handles more than one million tons of ore per year.

A New York business man, Lansdell Christie, secured an eighty-year mining concession from the Liberian government in 1946. The concession also included exploration rights to a 5,000 square-mile area for three years, the right to build a railroad, and an exemption from paying import duties on mining machinery. In return, the Liberian government would receive five cents for each

ton of exported ore and an additional sliding amount to be based on the Pittsburgh price of Bessemer pig iron. Mr. Christie organized the Liberian Mining Company, "Libminco," and began operations with a staff of twenty men from the Netherlands who had experience in tropical Indonesia.

ENVIRONMENTAL PROBLEMS

Transporting the ore from the Bomi Hills to Monrovia was the next problem to be solved. First, access roads had to be built before construction of the railroad could begin. The road was built by Liberians, entirely by hand labor, at a rate of five cents per hour plus food and incidentals. This rate was almost double the legal minimum wage. Trees were cut. Rocks were split. Rivers were bridged. The highway link between mining field and Monrovia was completed in 1948.

Meanwhile, work on the railroad was going ahead rapidly. Modern power machinery was imported to do the job and 4,000 Liberians were employed in the construction phase of the work. They were trained to operate bull-dozers, drive trucks, and master pneumatic drills under American supervision. In two years the company spent two million dollars on its railroad, but the near-to-impossible was accomplished.

The railroad climbs only 170 feet in the course of forty-five miles, but it crosses immense swamps and sizeable rivers. Reinforced concrete bridges carry it across the swamps and two steel bridges negotiate the Kpo and Maher rivers. The Tubman bridge across the St. Paul River, measuring 980 feet long, was the most expensive link in the entire line. The major nuisance is the ground termite, or "bugabug," which eats ordinary railroad ties in a few days. Engineers were forced to use expensive blackgum and ironwood hardwoods not on the preferred list of the pest's menu. Fortunately, there were no hills to tunnel or blast and construction progressed quickly and smoothly.

The first train made the trip from Monrovia to the Bomi Hills in April, 1951. The first haul on the return trip consisted of 10,000 tons of ore loaded by hand and truck. Indeed, there was cause for celebration when the ore boat finally arrived in Baltimore on June 23, 1951, after an 8,000-mile trip. The Liberian ambassador, the president of Libminco, the vice president of Republic Steel, representatives of the United States Department, the Export-Im-

port Bank, the Baltimore and Ohio Railroad, and the Port of Baltimore were literally all on the "dock" to greet the ship.

HUMAN PROBLEMS

Coincident with the building of the railroad, health problems had to be solved before a sturdy labor supply could be assured to operate the new mines. In the short span of three years several ancient scourges were either curtailed or wiped out completely. Health improvement teams from the United States, thru the liberal use of D.D.T. and by draining the swamps, cut the incidence of malaria by an amazing 95 per cent. War was declared on all types of flies and the number of cases of intestinal disease was lowered substantially. A vigorous program to curtail venereal disease was eminently successful. Today, the native Liberian is subject to compulsory examinations and receives free treatment for venereal disease at government expense.

Labor conditions have improved slowly since the building of the railroad. Even tho there is no organized union, laborers are paid fifty cents a day plus maintenance. Employees of the mining company are fed rice, meat, and palm oil. Natives, who have heard that Libminco pays good wages, provides adequate food and housing, and treats the help well, come in from the hinterland to work. Liberians have become eager learners, and they perform their tasks efficiently.

As labor conditions have improved so mining operations have been perfected. The thirty-four car ore train now makes the two and one-half hour trip from mill to port every twelve hours. Each car carries fifty tons of ore, and both the railroad and the road have survived the heavy rainy seasons.

FUTURE OF THE BOMI HILLS

How long will the ore last? Estimates list totals of 22,000,000 tons of open-hearth grade ore; 50,000,000 tons of high-grade ore; and several hundred million tons of lower-grade blast furnace ore. Surface mining can be carried on for at least fifteen years. After that it is doubtful whether underground mining will be feasible in an area with an annual precipitation of more than two hundred inches.

The Bomi Hills story will not be finished until the resources of this rich area have been exhausted. Several generalizations may

be made about this mining venture, widely acclaimed as the most dramatic success in Liberian economic history:

1. It is thru compromise and negotiation that people are able to arrive at beneficial solutions to problems.
2. People, with no experience in mechanized living, given guidance and decent friendly treatment, are able to gain easily the skills needed for production. Superior workmanship does not belong to any particular country.
3. Exploitation of people and resourses is now an inevitable outcome of foreign interest in another country, providing that foreign company is honest in making known its purposes. If the company intends to make money, profits must be shared with the government to be used for the betterment of living conditions for all of the people.
4. Labor conditions in one area of the world greatly affect business enterprise in another area of the world.
5. Improvement of health is one of the changing conditions which helps to improve primitive economics.
6. Everyone is involved in the conservation of natural and human resources. These resources belong to the whole world.
7. As the United States places mounting reliance upon imports of foreign iron ore, the concept of mutual security and collective action should be reinforced for each of us.

The Bomi Hills story is more than a series of figures in the millions. It is more than an export chart showing growth in production. It tells a tale of resources, of people, and of change.

THE GEOGRAPHY OF THE SKYSCRAPER

JAMES H. JOHNSON
University College, London, England

The skyscraper is a feature of almost every American urban settlement of more than moderate size, while even many a relatively small and unknown city can boast structures which rise higher than any buildings in the great capitals of Western Europe. The larger the city, the more important are its tall buildings as an element in the urban pattern. Not only do they form an outstanding feature of the landscape, but they are equally important in giving a distinct environment to those districts in which they are situated. In the knowledge that high school teachers must often have wished to bring this topic to the attention of their classes this article attempts to make such a task easier by pointing out some of the factors influential in the development of the skyscraper as an urban form.

Tall buildings are not haphazardly scattered thru an urban area, but their location is closely associated with the central business district. This is the area of the city convenient to the greatest number of people, where much of its office space and many of the large retail stores are to be found. Here too are focused the city's financial and entertainment functions—in fact, all those forms of enterprise which require the closest connection between themselves and a large number of customers, and which as a result are prepared to pay more for a site in the central area. Skyscrapers, therefore, tend to be found where inflated land values create the need for more floor space on the same surface area. In a successful skyscraper the greater total of rent which it will yield far outweighs the higher costs of constructing a tall building.

Another factor appears to have helped to make these tall buildings economically practicable. The development of large commercial firms in the nineteenth century brought the need for a close relationship between business men, their agents and the innumerable organizations connecting a great financial center. In creating such a relationship the skyscraper was particularly suitable, since many different organizations could be grouped together on a relatively small area of land—sometimes even in the same building. A simpler example of this is the large hotel, which in many cities is the tallest building. Here again the skyscraper seems to be a form of structure useful for the operation of such an enterprise, with a large number of bedrooms being concentrated vertically over the administrative and service operations on the lowest floors of the building.

Acceptance of the Innovation

Altho the economic conditions and the functioning of the central areas of all large cities favor the erection of skyscrapers, it does not follow that they will inevitably be built. London illustrates this point well since it has few tall buildings and none which can be compared with a typical American skyscraper. It might be argued that here the site of the metropolis offered room for the expansion of the growing city, but this suggestion cannot be accepted as there is a great demand for space, and consequently very high land values in the critical central area. Nor is it possible to accept fully the more plausible explanation that the cause lies in the London Building Act, even tho this still legally restricts the

height of most buildings to 100 feet and to go higher requires special permission. Closer investigation shows that the London limit was originally fixed because of fire risk; and improvements in fire-fighting methods make the restriction of building heights for this reason no longer necessary. Such ordinances, therefore, could be altered if there was sufficient demand for a change, and so the adherence to the restrictions by a democratic city government merely indicates an unwillingness to accept the skyscraper form.

Partly this unwillingness is due to practical difficulties. Not only do skyscrapers intensify rush-hour problems as they pour out their many employees upon already overcrowded streets, but there are also planning difficulties in allowing adequate air and light for groups of tall buildings and the lower structures about their bases. These difficulties, however, are inherent in the skyscrapers of every large city and are not exceptional in London. More special are the aesthetic reasons for preserving the low London skyline. The potential danger can be shown even in commercial New York, which has few artifacts surviving from the past altho it has a long history for an American city. There, the dwarfing of St. Patrick's Cathedral by the skyscraper towers of Fifth Avenue illustrates how much more damage would be done to the character of London, where history and tradition still show clearly in the urban fabric. In spite of this, there is evidence that the skyscraper idea is at last being accepted. Planning consent has been given to several new office buildings which will rise far higher than usual in London, and many more applications are pending.

TECHNICAL ADVANCES

While part of the explanation of the presence of the skyscraper in a modern city is to be found in the acceptance of the idea, the necessary techniques to build such structures had to be developed, and these methods intelligently adopted by architects, before this stage is reached. The perfection of these techniques therefore marks a key point in the development of the modern American urban landscape and is worth more careful investigation.

The skyscraper as an architectural form dates from the last quarter of the nineteenth century, but the technical advances which made this type of building possible began in eighteenth century Britain. About 1760 iron became available on the mass production scale which followed the erection of new and larger furnaces

adapted for using coal and coke. The availability of large quantities of this material led to many tentative experiments in its use for new purposes. While the attempts to make it into furniture are perhaps better forgotten, the idea of using it as a building material proved vitally important in the history of construction. The use of iron for this purpose perhaps reached its culmination in the Crystal Palace, designed by the conservatory builder Joseph Paxton for the Great Exhibition held in England in 1851. Here, iron was used as a frame to support a vast acreage of glass—a concept not far away in spirit from that behind the design of the modern skyscraper. Paxton's work, however, was followed up, not by architects, but by engineers who were designing expanses of roofing for the new railway stations of the day. Less spectacular, but of more direct relevance for the origin of the skyscraper, was the work of James Bogardus, who in 1848 patented a system by which exterior walls were built round a frame-work of cast-iron columns. This development led directly to the invention of the steel-frame building in Chicago at the close of the nineteenth century. Another technical development in a rather different field was the perfection of a safe and fast passenger lift. The stimulus for this invention had come from the demands of the mine and factory, and as early as 1851 the first really safe elevator had been demonstrated at an exhibition in New York. By 1890 a much improved version was in use in the early American skyscrapers, which could not have functioned without it. The way was thus prepared by the technical achievements of the nineteenth century, but at the same time the skyscraper cannot be looked upon as an inevitable product of them.

Equally the very tall building was not a product of the physical environment. Most people think of a cluster of office towers in New York as marking the beginnings of the skyscraper form. While the lack of space for expansion and the solid crystalline rocks of Manhattan are so frequently mentioned that they might seem to have predestined its conception, in fact the skyscraper was born on the lake clays of sprawling Chicago. Not that this invalidates completely the idea that these buildings were a product of a desire for intensity of land-use. Altho central Chicago appears to have had far more space to spread outwards than New York with its core in Manhattan Island, there was in fact considerable limitation on the amount of space available in the central business district, due not to the physical environment but to the activities of

man. Each of the early railways sought to operate its own routes into the heart of Chicago and hence they formed a ring around the down-town area, restricting its expansion. To the north growth was impeded by the Chicago River, but to the west and south almost all the land bounding the central business district was occupied by railways; and to the east lay Lake Michigan as well as the tracks of the Illinois Central. As railways tend to be among the most inflexible elements in the urban pattern owing to the capital investment they represent, this constriction has remained a constant factor in the economics of central Chicago.

Historical Background in Chicago

The constriction by the railways was made more effective by the vast expansion of the city. In 1850 the population of Chicago was nearly 30,000 but by 1870, it had almost reached 300,000—a growth which was in sympathy with the opening up of the prairies and the expansion of agriculture in the Mississippi valley. At this time 75 passenger trains went in and out of the city every day, and even in 1870 its grain markets were famous. Altho Lewis Mumford could stigmatize the Chicago of the period as "a brutal network of industrial necessities," all these developments brought with them the financial and administrative offices without which the growing city could not function. This led to a steadily increasing pressure on the central areas of the city, reflected in rising land values. In 1880, land in the Loop (the central business district of Chicago) was $130,000 per quarter acre and it had risen to $900,000 ten years later, by which time the population of the city had reached over a million.

An historical event must be recorded to complete the picture. In 1871, fire swept thru the central areas of the city, destroying $192 millions out of an estimated $575 millions worth of property in the whole urban area. The program of reconstruction which followed gave a great opportunity to architects, and as a result brought together an exceptional group of men. Working in a remarkable city at a unique time in its history, in as little as twelve years they succeeded in perfecting the steel skeleton frame together with a series of related constructional advances which made the building of skyscrapers possible.

Immediately after the Chicago fire, however, the genuine skyscraper did not appear. Buildings were still supported by the

masonry of their walls, and this proved a limiting factor to height. The taller these traditional masonry buildings became, the thicker had to be the base of their walls. Not only did the weight of the walls pose engineering problems, but also their thickness at the base made natural lighting of the lower stories difficult and used up some of the most valuable floor-space in the buildings. Even so Chicago could boast the tallest building with masonry walls ever constructed, appropriately called the Monadnock Building, which rose to sixteen floors and had walls 72 inches thick at their base. But before this giant was completed in 1889 the decisive innovation which made possible the true skyscraper had been made. The Home Insurance Building, designed by William Le Baron Jenny in 1885, was the first structure exhibiting the method of construction which directly made possible the skyscraper, althou it rose only to a mere twelve stories. The walls of this building had no bearing function at all. In fact they did not even support themselves, but were held up by a framework of iron girders which carried the full weight of the building. The innovation was completed in 1900 when steel was generally adopted instead of iron for the frame. The advantages of this new method of construction were immediately apparent. As C. W. Condit has pointed out, the weight of buildings for their height was substantially reduced, a much greater area of glass was possible in the walls allowing the maximum admission of daylight and there was much greater freedom in the organization of interior space. Finally, and not least in importance, the method of construction brought economy in cost of materials together with speed and efficiency in erection.*

Environment of the Skyscraper

The skyscraper towers which developed from the earlier tall buildings of the Chicago group of architects have been characterized as America's most important contribution to world architecture. Not only do they give American cities their most distinctive appearance, with tall and bulky buildings ranged along the straight streets of the grid-iron plan, but also they create a distinct environment for the activity carried on in them.

The most important instance of this latter influence is the need for vertical transportation. The elevator was influential in permitting greater building heights, but now the position has ad-

* Carl W. Condit, *The Rise of the Skyscraper*. Chicago, 1952, p. 116.

vanced so far that it has become a vital link in the transportation network of a big city. New York City, for example, has over 30,000 passenger lifts which every day carry passengers a total of 125,000 miles. The conventional two-dimensional approach to transportation problems is perhaps put in more accurate perspective when it is recorded that there are as many miles of elevator shaft in New York as there are of subway track.

The concentration of a large number of people in a small area of a city, made possible by the development of the skyscraper, affects normal horizontal transportation too. In the center of most large American cities there is not even space on the sidewalks for one-third of the people who work in office buildings, and such overloading makes the streets much less efficient for the task of carrying traffic. Associated with this general congestion is the attempt to relieve the situation by building express-highways out of cities. In spite of the emphasis which is given to such schemes, the earlier means of rapid transit by subway and by the now disappearing elevated railway still remain more efficient means of moving people from their suburban homes to their places of work. Indeed, the functioning of the numerous skyscrapers found in the centers of the metropolitan cities of the U.S.A. is only made possible by these facilities, which permit the bringing together in a relatively short time of a large number of employees for the many offices which are concentrated in the down-town areas.

Important too is the struggle for light and air which is caused by building high. The "canyons" of Lower Manhattan are notorious, and are merely the product of vast buildings facing along relatively narrow streets—an arrangement which is the least efficient for admitting light and air. If financial return is the only interest of the designer, a tall slab is more profitable than a slim tower; and when buildings designed on such a principle reach the size of the Equitable Building in New York, which casts a shadow of 7½ acres at noon on the winter solstice, the interference with the light and air of other buildings becomes insufferable. As a result building ordinances now prevent the development of the skyscraper form to its ultimate economic conclusion in closely built up areas. These laws have given a characteristic appearance to many new tall buildings by enforcing set-backs and forming, as one author put it, "groups of Mesopotamian ziggurats." In some cases an attempt has been made to cut down interference with light by con-

centrating buildings on the central part of their sites rather than lining them along the street. The Bellevue Medical Center in New York City is an example of this, and in modified form there is such a grouping among the buildings making up the Rockefeller Center. These modern developments have improved the environment in which economic activity is carried on, which sometimes brings its own financial reward. Certainly this is so in the Rockefeller Center, for there businessmen are willing to pay higher rents for spacious, well-lighted and unobstructed offices.

Skyscrapers in America are found not only in the largest cities; but in other settlements their presence must be explained in different terms. In these, land values cannot reach metropolitan heights, and so it would seem that a wish for intensity of land-use is not the only motive involved. In many medium-sized towns the desire for prestige may be just as important a reason for building high: to the bank it can give an appearance of substantial operation, to the hotel a view from its bedroom windows and a reputation for being the tallest building in town. This additional motive may explain why there seems to be a tendency, in medium-sized towns at least, for the tallest buildings not to be at the point of peak land values even tho they may be associated with the general area of the central business district. Such structures as hotels and banks may function better away from the intense congestion of the point of highest land value, altho for other reasons they favor tall buildings to house their operations.

Not that prestige does not bring economic return. An address in the Empire State Building has financial value for the right kind of enterprise, while a fine building in the city center may draw attention to the name of a product as much as an intensive publicity campaign. Thus the Lever Building in New York is perhaps an architectural symbol rather than an investment yielding direct financial returns. Altho it occupies a very valuable site, the owners of this building were satisfied to enclose much less than half their allotted building space and to forego the rent of stores at street level.

Conclusion

The skyscraper has been shown to symbolize the high land values, the great concentration of people during the waking hours and the high intensity of land-use, which are typical of city centers. These very features would probably have led to the erection

of tall buildings of some sort, even if a talented group of architects in Chicago had not been given the opportunity to experiment; but the decisive steps might well have been taken in quite another place—perhaps even outside the United States. If taken in another country, it is doubtful if there would have followed the phenomenal spread of the architectural form which occurred in America. Once the skyscraper had been shown to be technically possible, the social environment of the United States at the close of the nineteenth century was such that it was generally accepted as a sound business proposition: new technical advances were being greedily adopted and applied, and so the architectural form quickly spread to many cities. As commerce held a dominant position in American life, the efforts of many architects, which elsewhere or at other times might have been devoted to the erection of citadels for church and state, were focused on the production of commercial buildings. At the same time, new cities were being built where none had stood before, whilst even in the older urban settlements there were few inhibitions about replacing that which was old.

With many omissions and much simplification this article has mentioned some of the factors involved in a complex story. There is evidence now of an improvement in the design of the individual skyscraper, but it remains to be generally realized that the tall building must also be planned as part of the general environment of the city—a task in which geographers must surely have some part to play.

Note for further reading

Much of what has been written on the development of the skyscraper is concerned with the architectural form rather than its geographical setting. One of the best books of this type is Carl W. Condit's *The Rise of the Skyscraper,* Chicago, 1952, which deals particularly well with the contributions of the members of the Chicago School, as well as with the perfection of the techniques of construction and design. William Alex has condensed into prose an exhibition which he prepared for the New York Museum of Modern Art in his essay, "The Skyscraper: U.S.A.," *Perspectives No. 8,* Intercultural Publications, New York, 1954, p. 86 The Museum of Modern Art has also published *Early Modern Architecture in Chicago,* New York, 1940.

The social and economic environment produced in the urban community is comprehensively and readably expounded in Arthur B. Gallion's *The Urban Pattern—City Planning and Design,* New York, 1950. On the detailed geography of the central business district of a number of medium-sized towns see, Raymond E. Murphy and others, *Central Business District Studies,* Worcester, Mass., 1955, which was reprinted (with additions) from *Economic Geography,* Vol. 30 (1954), p. 189; Vol. 30 (1954), p. 302; and Vol. 31 (1955), p. 22. The economics behind the pattern of land utilization found in a city are discussed in Richard U. Ratcliff, *Urban Land Economics,* New York, 1949.

GEOGRAPHY POSTERS—A WAY TO REVIEW

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The successful beginning and concluding of a year of work in the classroom is somewhat comparable to the starting and stopping of our modern high-powered automobiles. It is sometimes easier to start than it is to stop effectively. How to review previous learnings in an interesting way is a task all teachers have no matter what teaching procedure is used.

A sixth grade class in social studies at Corsicana, Texas chose to use geography posters for their review at the close of the school-year. Each student selected a major crop or industry that had been studied during the year. The class discussed ways of presenting their individual projects in a graphic and informative way. They decided that the use of posters would be the most interesting and practical way.

Reference books, encyclopedias, magazine articles and texts were used by each member of the class in the preparation of the posters. Much reading and note-taking was necessary before any graphic work could be started.

By consulting art books a format was made which varied slightly to best portray each individual topic. All posters were made on 18×24 inch manila paper. The name of the crop or industry chosen and the names of the major importing and exporting countries were cut from colored construction paper and mounted on contrasting colored construction paper. A picture of the crop or industry or a well-known product of the crop or industry was mounted on a suitable background. In some instances the actual product was used. For example, one student who had chosen rice as her topic glued rice kernels at the top of the poster to form the name of her product. On each side of the picture (see Fig. 1) basic information about the topic was printed on contrasting paper. In stating the basic information concerning the crops most of the students gave information about growth requirements, appearance, and uses. For industries most of the students gave information about manufacturing requirements and products of the industry and their uses.

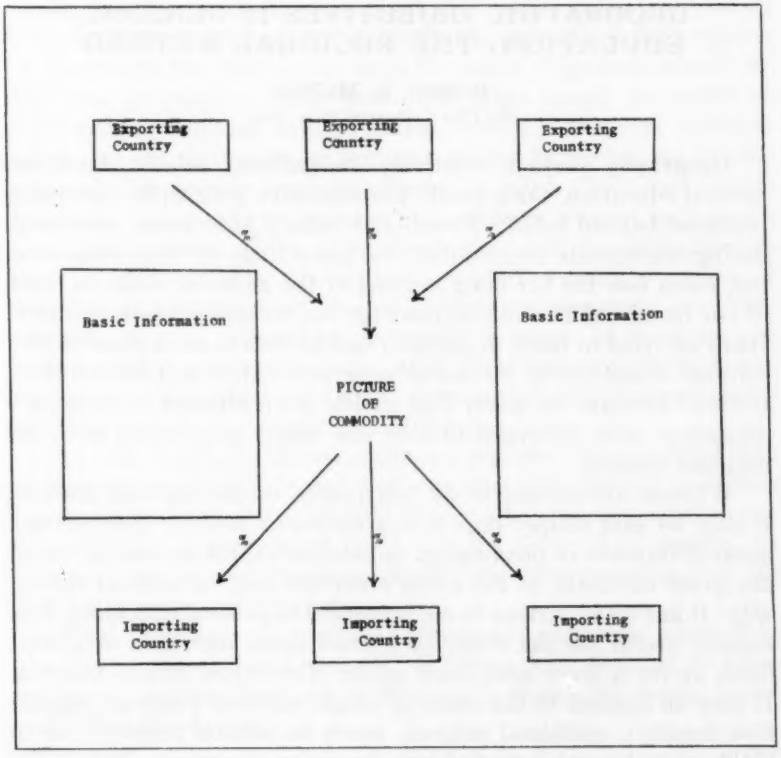

FIG. 1. Framework for a geography poster.

Arrows were made pointing from the major exporting countries to the picture of the commodity with the percentage of world export on the arrow. Also, arrows were made pointing from the picture to the major importing countries with percentages of world imports placed on these arrows.

When all component parts of the posters had been completed they were arranged in an attractive manner and in proper balance and pasted to the manila paper. As each poster was finished it was placed on the classroom bulletin board around the room.

The brief presentation of each poster by each student gave rise to class discussion which, supplemented by the teacher's comments, served as one way of reviewing the work of the year.

GEOGRAPHIC OBJECTIVES IN GENERAL EDUCATION: THE REGIONAL METHOD

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Geography plays a relatively insignificant role in American general education.[1] As a result, our collective geographic ignorance is almost beyond belief.[2] Twentieth Century Americans, now shouldering world-wide responsibilities, know little of their own country, much less the far-flung regions of the globe in which so much of our blood and treasure is pouring. Are we geographers at fault? Have we tried to teach *geography* rather than to meet *general educational objectives* by the use of geographic ideas and factual illustration? Perhaps we have. This article is an attempt to state such objectives with reference to only one major geographic idea, the regional method.

Without attempting to do full justice to the regional method, it may be said simply that it is a device or tool for interpreting areal differences in phenomena, an intellectual framework by which the great diversity of the earth's surface may be studied rationally.[3] It has many virtues to recommend it to general education. It is equally useful for the study of a small area, such as a neighborhood, or for a large area, such as the Midwest or Anglo-America. It may be applied to the study of single subjects (such as population density), combined subjects (such as natural regions), or to highly complex subjects (such as human use regions). It permits broad generalizations by focusing on the cores of regions rather than their boundaries. It is subject to control since the degree of generalization involved may be indicated by reference to specific regional categories. Similarly, control may be exercised by the comparison of differing regional systems. Of course, the objective comparison of specific regions is possible only within distinctive limits imposed by the varying complexity of regions and their scale.

By the regional method I do not mean simply "regional geog-

[1] Jesse Wheeler, Jr., "The Role of Geography in General Education" speech given at the 50th Anniversary Celebration of the University of Chicago Department of Geography.

[2] J. Russell Smith, "How to understand a Nation," JOURNAL OF GEOGRAPHY, Vol. LIII (1954), p. 71.

[3] Derwent Whittlesey, "The Regional Concept and Method," *American Geography: Inventory and Prospect*, A.A.G., Syracuse, 1954, p. 19.

raphy'' as it is most often organized, nor ''area studies'' as usually organized. Such studies may be extremely valuable in the training of specialists but they do not meet the needs of general education. Regional geography, unfortunately, is often simply the study of a particular regional system rather than the regional concepts which led the instructor or textbook author to devise his specific regional framework. Such geography is often static and sterile because it gives only an arrangement of facts without including a clear presentation of the ideas which produced the arrangement. Area studies without the regional concept remain a series of separate and disconnected studies of specific phenomena; interrelationships may be guessed but not easily grasped. In short, we are not concerned so much with the areal distribution of facts as the regional method which enables us to make rational interpretations of those facts in their regional setting.

As with most intellectual endeavor, regional study is filled with hidden traps and pitfalls and well supplied with alluring dead ends by which the unwary are brought to thoroly erroneous conclusions. Nevertheless, it has proved itself over the years of its gradual refinement and is indispensable to realistic interpretations of the lands and peoples of the globe.

What objectives of general education are especially adapted to the use of the regional concept? It seems well adapted to three major and interrelated goals. That is, it is notably useful in encouraging the student:

1. To integrate knowledge derived from academic study of traditionally separate subjects or from travel,
2. To generalize accurately the variety of the face of the earth, and,
3. To relate effectively his immediate community to wider communities.

INTEGRATING KNOWLEDGE

Integrating knowledge is both difficult and exceedingly important. In the main, integration must be performed individually by each student. Clearly, however, we should encourage the integrating process as much as possible. Regionally oriented courses cut across disciplinary lines and allow the student to apply knowledge gleaned from many sources to the understanding of a particular segment of the earth's surface. That is, they provide the same kind

of integration in space that history provides in terms of time.[4] For example, the study of economic processes *per se* is economics while the study of economic processes over time is economic history and the study of economic processes in space or area is economic geography. History is the study of events or processes over time while geography is the study of events or processes in area. If introduced early in the program of general education the regional method provides a framework to which separate subjects may be related as the student advances. Near the end of the program in general education, it helps the student to integrate knowledge already acquired and to recognize gaps and "blind spots."

Our students urgently need regional preparation for travel. We are the most mobile people on earth, with over 30 million Americans changing residence every year. Our world wide responsibilities take us increasingly to the ends of the earth. Similarly, tourism increases year by year. But how significant in our education is all this endless travel? Is travel truly broadening? Or are we all so incurably provincial that we can learn nothing from other areas? Travel *can* be broadening, *can* open new vistas to the active mind, *can* reduce our preoccupation with the local and the petty. But it can do all this only in so far as we are prepared to accept regional differences and to observe them with understanding.

Generalizing the Face of the Earth

The face of the earth is indeed extraordinarily complex and acquiring an understanding of it is a long and difficult process. But this understanding is important to citizenship. The thoughtful citizen realizes the importance of the physical environment in all its diversity. He appreciates the cultural variety of the earth, the importance of differing interpretations of, and reactions to, the physical environment. The thoughtful citizen needs also a clear understanding of the regional concept so that he can make realistic and meaningful comparisons among diverse lands and peoples. Regions with similar cultures *and* similar physical environments may perhaps be directly compared. However, comparisons among regions similar in culture but differing in physical environment (i.e., opportunities and problems) or similar in physical environment but differing in culture (i.e., tools, techniques, institutions,

[4] R. Hartshorne, *The Nature of Geography*, Association of American Geographers, 1939, p. 460.

attitudes, and manifest desires) are comparisons which should not be undertaken lightly. It is surprisingly easy to misinterpret, to ascribe to cultural limitations or to "cultural lag" what is in reality an environmental obstacle or to consider an environment hostile which is only misunderstood. For example, to what extent do the cultural characteristics of the American "Southern Highlands" result purely from "cultural lag" induced by isolation and to what extent do they result from the peculiarities of the Appalachian environment? Or, to what extent is the low population density of most tropical forest lands the result of a truly hostile environment and to what extent is it the result of a lack of understanding of that environment? Adequate grounding in the regional method helps the citizen to interpret correctly the complexity of the face of the earth.

RELATING THE COMMUNITY TO LARGER COMMUNITIES

The citizen should be able to relate the social, economic, and political problems of his immediate community to wider communities. The regional concept is especially useful in helping him to recognize the interdependence of all lands and peoples, to understand the regional issues involved in public policy decisions, and to appreciate the problems inherent in the development of greater unification and integration among all peoples.

The increasing interdependence of all lands and peoples is perhaps the most outstanding development of modern times. The citizen is reminded of this at every turn. But mere awareness is not enough. He should appreciate the manifold ramifications of this progressive shrinking of the human habitat. He needs understanding of the nature and causes of this growing interdependence. Regional study promotes such understanding since the study of regions involves not only internal regional characteristics but also inter-regional relationships and interregional lines of force and lines of flow. The more intensively regional study is pursued, the more evident regional interdependence becomes.

Many public questions are essentially regional in nature.[5] How can a rational balance be attained between the world's people and the world's resources? How can the more "developed" areas best aid the so-called "underdeveloped" areas? Should our industries be relocated? Should the federal government give special employ-

[5] E. Engelbert, "The Contributions of Political Science to the Theory and Methodology of Regionalism," *The Professional Geographer*, Vol. VI, No. 5 (1954), p. 15.

ment opportunities to declining industrial zones such as the Anthracite Region of Pennsylvania? Should coordinated river valley projects such as the TVA be extended to other valleys? What kind of planning is needed for our growing metropolitan areas? Active and intelligent citizen-participation in such decisions requires a knowledge of regional theory.

The need for greater unification and integration among the world's peoples is paramount and compelling. Twice in this century international cooperation has foundered on the shoals of regional diversity. Totalitarian states have attempted and are attempting unification of major world areas thru brutal armed force and subervision. Western Europe has attempted a limited and peaceful unification since the Second World War. What areas are being impelled toward union, and why? What regional bonds of the past are dissolving and what new bonds are being formed? What will be, or should be, the major future regions of the world? Intelligent answers to these broad questions must rest in considerable measure on the study of regions and regionalism.

Conclusions

Understanding of the regional concept is thus a powerful factor in helping future citizens to integrate their knowledge, to understand the face of the earth, and to relate themselves and their communities to wider communities. The regional concept can make major contributions to general education.

Regionalism has found a place, however small, in nearly every discipline. In history and political science it appears as the study of sectionalism, in anthropology as the study of culture areas, and in biology as ecology. But it is geographers who have most studied regions *per se,* i.e., the concept and method of regionalism as distinguished from limited applications. Accordingly, geographers are called upon to foster the increased use of the regional method in general education, both thru re-orientation of introductory geography courses and thru encouraging the use of the regional method in other disciplines.

GEOGRAPHY WORKSHOP FOR ELEMENTARY TEACHERS

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A geography workshop for elementary teachers is nothing new. This particular project, however, was requested, majority approved and fully executed by nongeographers; namely, the staff of the elementary schools of the district. Professional geographers were called in for the scaffolding only. By giving up one full week of their summer vacation and going back to classes of their own choosing, these elementary educators proved once more the need for more geography offerings in the nation's teacher training institutions.

It all started with a routine question towards the end of the school year on "What in your opinion would help you most?" When the ballots favored the "dark horse" geography, nonclassroom people immediately went to work. On the first vacation day a map-filled auditorium received postgraduate beginners in geography.

Four introductory lectures strategically placed thruout the week became the core of the workshop: 1) Use of Maps and Globes, 2) Geography of the World, 3) Geography of the State, 4) Geography of the Community (with field trip). Around these lectures, then, the teachers organized their own discussion groups, grade level meetings, map displays, exhibits and other projects.

Tools of Geograhy

World Geography was selected as the opening topic and the actual workshop started with a talk on the Use of Maps and Globes, which was given by the representative of one of the leading map companies. Armed with this newly gained knowledge, the teachers gathered for their first grade level meetings. An inventory of the maps which are used in elementary classrooms was scrutinized, and the best maps for grades three thru six were viewed critically. Next the maps were correlated with the various prescribed teaching units and naturally the skill of the teachers in the use of maps and globes had to be tested. Special attention was given to physical maps, their legends, to the slated globe and of course to the concept of directions. Thruout the map sessions the

guiding question was: "How can the tools of geography help the elementary teacher to create more pupil interest?" It was generally agreed that at least the first two R's, reading and writing, could in many ways benefit from the use of maps and globes.

Not satisfied with just talk, the teachers finally went to work on their own cartographic projects. They used crayon, salt, flour, papier-mache, and the opaque projector. In the words of an elementary supervisor, "No teacher finished any type of a map but all had an opportunity to try."

Supplementary Material

On a succeeding day the Audio-Visual Department took over with films, filmstrips, exhibits, study prints, and with catalogs of teaching aids. Needless to say, the supervisors had used their own sound judgment on what material pertained to geography and what did not fit the occasion. Again, usage of audio-visual aids by grade levels was the most important concern of those who looked, listened and then discussed what they had learned.

The library appealed to the group with "Books That Develop Geographic Understanding," such as *This Is the World* by Pease or *The First Geography of the Pacific* by Sondergaard. The follow-up discussions were fortified by sample readings and the elementary teachers discovered on their own what professional geographers preach continuously: landforms, climates, soils, etc., cannot be divorced from the activities of people. Man and his environment must be balanced and the elementary pupil is not too young to understand the concepts of interdependence.

In grade level meetings the textbooks, which had just been closed for the duration of the summer, were opened again, and some of the stories were now read in a different light. Somebody had gone thru the children's newspaper *Weekly Reader,* and had found much information with geographic implications. Finally the customary clippings from dailies and weeklies for the classroom bulletin board were submitted for geographic interpretation. And of course newspaper maps from this time on will have an assured prominent place on the classroom walls.

Integration of Geography

As could be expected the social studies unit was recognized as the best place in the elementary curriculum for the teaching of geographic concepts. Third graders for instance study the world

of the American Indians; fourth graders take a first stab at different countries; in their fifth year the students return to our own shores and go west with the first settlers; and in the final elementary grade pupils are considered ready for some aspects of modern living, such as, air transportation, communication, the great routes of the world. Five concepts were recommended to social studies teachers as quasi beacons to geographic understanding: how man uses, controls, understands and changes his environ ment, and what the effects are. In class level debates the dominant questions were: "Can beginning students be taught the difference between proper control and exploitation of our natural resources?" "Can they be made to see the need for conservation and preservation?"

Not all the credit respective to geographic work was given to the social studies department. A special committee of science teachers took charge of a half-day session dedicated to the "Relationships of Science to Geography." Once more a guiding principle was explored and discovered by amateur geographers: The importance of geography stems from the fact that it is the link between the social and the physical aspects of the world.

UNDERSTANDING YOUR HOME AREA

The last two days of the workshop week were given over to the study of state and community. An afternoon field trip thru the metropolitan area was included. The hopes that this part of the program would more or less bring about an application of the principles of geography were justified beyond expectations. Questions on the physical-political map of the state were concise. Terms and concepts were now correctly related to otherwise familiar terrain features. To the trained observer it seemed that for the first time areal problems were recognized rather than reconnoitered. The many newcomers to the state, especially, appreciated a first opportunity to air and to discuss intelligently some of their impressions which had puzzled them so much. The "Why's" had it this time: "Why do so many people come to the state and to the city?" "Why must water be imported?" "Why are the east-west roads poorer than the north-south routes?" "Why does the shoreline subside?" and, last but not least, "Why smog?" The answers to most of these questions came via the do-it-yourself method on the field trip.

Teachers are good in note-taking to the end. When on the last

Friday afternoon in addition to and beyond the field trip the patience of the group was rewarded with a pleasure boat trip, a glance at one of the notebooks revealed the most fitting epithet to one week's exposure to geography: "Much geographic information was given by the captain of the boat as he explained what we saw." The growing realization of the importance of geography in the elementary school is shown by another fact. The administration has already scheduled city-wide lectures on geography for the coming year.

HELPING STUDENTS SEE WHAT'S THERE

MARY ALICE ERICSON
Gustavus Adolphus College

Geography teachers customarily use field trips as an integral part of the course of instruction and they usually become experts. As their skills increase, they also become more aware of what their students actually observe in the landscape. All too frequently they discover, as I have, that college students at the introductory level fail to see most of the landscape features along the route. They are good observers, however, when a stop is made and features are explicitly pointed out and explained. Thus, field trips of any distance involve a lot of wasted time and travel.

While I was pondering this problem, I received copies of the handbooks prepared for the field trips of the International Geographical Union for 1952. I was astonished at the quantity of detailed information assembled for professional geographers who were experts at reading landscapes. I compared these handbooks with the paucity of notes that usually accompany the map distributed to members of a geography field trip, even when they are not experts at observing the landscape.

Over a period of eight semesters, I have been building a set of itinerary notes to help introductory geography students observe the features of the landscape along a forty-five mile route in the local area. I have been so pleased with the results, that I thought other teachers might be interested in a sample of the notes and in a description of some of the procedures I follow in developing and using them.

About two weeks before the four-hour field trip occurs, I stick three maps on the wall with masking tape. The route has been marked on them with a ball point pen in India ink. The first map is one of the city of St. Peter, size 11″ × 15½″, scale 1:950.[1] The second is a semi-detailed soils map of Le Sueur County, size 4′3″ × 4′5″, scale 1:31,680.[2] The third is a state highway map of Nicollet County, size 4′8″ × 3′, scale one inch to one mile.[3] During the two weeks, frequent reference is made to the field trip and students are encouraged to study the posted maps both in and out of class sessions.

Several days before the field trip I travel the route once again to check the accuracy of the most recent set of notes. In addition to the alternation of seasons each semester, each season is different from year to year. The number of man-made changes that occur during the period between field trips is most impressive. Less impressive is the amount of knowledge of the local geography which I have acquired. Both are incorporated in a revision of the notes.

These notes are duplicated and distributed to the students when they board the bus. At the same time they receive a map of the Le Sueur County Soil Conservation District, size 9½″ × 14″, scale four miles to the inch.[4] The route and five stops are indicated on it in red pencil. I used to distribute these materials at the class session preceding the field trip and request the students to read them carefully in advance and to bring them along on the field trip. I found, however, that some students forgot to bring them. When I distribute the materials as we start out, every student is sure to have them and I do not have to prepare extra copies to replace forgotten ones.

Another reason for distributing the notes at the last minute is to be sure that they are accurately descriptive of the landscape

[1] "City of St. Peter, Minnesota Zoning Map." Engineer's Office, June, 1947.

[2] "Soil Map of Le Sueur County." *Soil Survey (Semidetailed) Le Sueur County, Minnesota, Series 1944,* (April 1954) United States Department of Agriculture, Soil Conservation Service, in cooperation with University of Minnesota Agricultural Experiment Station, St. Paul.

[3] "General Highway Map, Nicollet County, Minnesota." Minnesota Department of Highways, in cooperation with the United States Department of Commerce, Bureau of Public Roads, St. Paul, 1949.

[4] "Le Sueur County Soil Conservation District." Cartographic Division, Soil Conservation Service, Region III, Milwaukee, cooperating with the District Governing Body. Revised Dec. 19, 1949.

which the students observe. When I prepared notes for prior distribution, there were too many discrepancies between the description of the landscape and the landscape. This spring there was only one unanticipated discrepancy. On the field trip we saw a sod-cutter stripping a pasture for urban lawns and saw four trucks laden with rolled sods. Many square yards of black earth were exposed where, two days before, the pasture was untouched.

A selection from the notes used on the field trip in the spring of 1956 is reproduced below to illustrate the kind of detailed description they contain. It includes the introductory paragraphs and the notes for the route shown on the map of St. Peter. The remainder of the notes, not given here, itemize in similar detail the features of the landscape along the route in Le Sueur and Nicollet Counties. Altogether the notes are ten standard pages in length.

GEOGRAPHY FIELD TRIP, MAY 17, 1956

Itinerary Notes for Reconnaissance Field Trip in the Local Area

Purpose. This short field trip is designed to assist you in viewing your immediate surroundings thru "geographic eyes." As we travel along, your attention is called to various features of the natural environment and of the cultural environment, usually when they are first encountered. For the most part, they are listed only once, no matter how many times they continue to appear in the landscape. Items of interest are named and described by means of geographic concepts. There is much more to observe than is indicated in these notes, especially the spring farming operations, the wild life, the people, and the weather.

Procedure. We will travel about forty-five miles thru Le Sueur and Nicollet Counties of the state of Minnesota on either side of the Minnesota River. As we ride along, please follow the route drawn on the map and observe the items in these notes thru the bus windows. When we make our five stops, please descend from the bus as rapidly as possible and give your attention to the speaker and features of the landscape. When the speaker is thru with his description and explanation, please ask any questions you care to. When the question period is over, please board the bus promptly.

The planning and procedures of this field trip follow commonly accepted standards for field trips. From this experience you can learn some of the techniques of conducting a field trip as part of the educational process. The transportation and communication expenses come from your lab fees. Your instructor is providing the simple refreshments. The farmers and engineer are contributing their facilities and services gratis. The farm planner is "on the job" when he meets with us.

Your map is a gift from the Owatonna office of the Soil Conservation Service. Altho it is not very detailed, it does show the system of land division in Minnesota. It is known as the "checkerboard" system. Notice that the county is divided into townships consisting of thirty-six numbered sections. Notice that the townships are numbered from south to north and that they are numbered as "ranges" in an east-west direction. This system of land division is based on astronomical observations, requires

trained surveyors, facilitates the recording of titles, and decreases disputes between land owners over boundary locations. It also facilitates a maximum dispersion of farmsteads.

1. Our bus is parked at approximately 44° 20′ N and 94° 57′ 30″ W on an outwash plain in the glaciated portion of the Interior Plains of North America. This spot is approximately 917′ above sea level.
2. Gustavus Adolphus College is a liberal arts college, owned by the Augustana Lutheran branch of the Christian church. The people of the local area are approximately one hundred per cent literate and Christian.
3. To the west of the campus 3,000 acres of land owned by the College and twenty-six other farmers are protected by a series of shelterbelts running north-south and east-west. About 150,000 trees have been planted under the supervision of the Nicollet County Agent, Mr. Fred Wetherill. They are a combination of three, four, six, eight, and ten row shelterbelts consisting of various combinations of the following species: caragana, male cottonwood, soft maple, green ash, American elm, white spruce, jack pine, Norway pine, and white pine. The banks of Nicollet County donated a mechanical tree planter to the Nicollet County Extension Office. As a consequence, this project, begun in 1951, was almost completed by 1953.
   The soils of this outwash plain are prairie soils of the Hubbard or Wadena series, sandy loam or loamy sand types, level or slightly undulating phases. Here they are Class IV land, subject both to wind erosion and drought hazards. Spring dust storms and the drifting of winter snow have in past years made temporary veterans' housing almost uninhabitable and have buried their gardens in drifting sand.
4. In the distance, on the left is a cluster of grain storage tanks. They are the property of the Commodity Credit Corporation, which uses them to carry out part of the Agricultural Stabilization Conservation Plan, more commonly known as the "ever-normal granary." Such tanks are common features of the landscape and, in this area, usually contain corn or soybeans.
5. As we drive north, we can see a Roman Catholic cemetery ahead on the left and a Protestant cemetery ahead in the distance, where Governor John A. Johnson is buried. Except for an historic private burial plot behind the Episcopal church, there are no graves within the city limits of St. Peter.
6. After we turn east, we pass the site of the new junior-senior high school of St. Peter Consolidated District No. 1. The grading operations have exposed the water-sorted sand of the outwash plain. This unconsolidated sedimentary rock underlies the College campus, too.
7. As we go down hill we are descending terraces built by the former River Warren at the retreat of the last continental ice sheet. The wide valley was made by the same river when it carried great quantities of melt water and drained former Lake Agassiz about 10,000-20,000 years ago.
8. The railway tracks belong to the Chicago and Northwestern system. This section of the railway handles freight only. At the freight station, location several blocks south, two years ago basswood logs from local woodlots were piled high for shipment to a wood veneer factory at Green Bay, Wisconsin. Large quantities of agricultural machinery, salt, etc., arrive at this station. Seed corn for Europe has been shipped from here, also.
9. The home on the left, immediately after we cross the tracks, once belonged to Governor Austin, one of the five governors of Minnesota who came from St. Peter. He held this office from January 9, 1870 to January 7, 1874.
10. Gorman Park on the right, named after another governor, is the playground for Central School on the left, and John Ireland School, the elementary

Roman Catholic Parochial School, at the south end. Governor Gorman held office from May 16, 1853 to April 23, 1857.

11. The large building to the left is the present junior-senior high school of District No. 1. It will be converted into an elementary unit when the new junior-senior unit is completed. Central School, built about 1880, is the oldest school building in town. The third floor has been condemned as unsafe and the entire building will be demolished soon.
12. Just before we enter Minnesota Avenue, there is an historic marker on the right informing us that we are on the Old Fort Road that connected Fort Snelling and Fort Ridgely.
13. The city of St. Peter is a small agglomerated urban settlement which provides a variety of commercial, professional, and administrative services for the rural population of the immediate vicinity, for the Minnesota Conference of the Augustana Lutheran Church, for the people of Nicollet County, and for the people of the State of Minnesota. It is the only survivor of three communities established in the early 1850's in this vicinity. Processed agricultural products such as milk, cream, eggs, seedcorn, and livestock feeds are the principal manufactures. Small factories manufacturing cement products for the local market, cigar box lid-props, work clothes, and electronics equipment are also present. This latter one is a "runaway" from one of the great electronics manufacturing centers of Anglo-America; i.e. the Twin Cities.
14. *STOP ONE.* The park adjacent to the bridge is Levee Park, so named because it is located where the river boats docked in the 1850's and 1860's. These boats ran in the spring of the year between St. Paul and towns along the Minnesota River as far upstream as New Ulm, bringing in dry goods, hardware, pig iron, mill work, salt, and other products not grown or manufactured locally. Just north of the bridge stood the three-story, stone warehouse to which farmers hauled wheat during the fall and winter. The steamboats carried wheat produced in this area as return cargo. The original bridge turned so that it was parallel to the stream, permitting the passage of the steamboats.

    The Minnesota River is a tributary of the Mississippi River and part of the great drainage basin of the interior of North America which empties into the Gulf of Mexico. It is a mature stream with a curving, winding channel, many oxbow lakes, and a broad flood plain. Its tributaries such as Cherry Creek, Le Sueur River, and Forest Prairie Creek are youthful with rapids and falls, V-shaped valleys, and intermittent flow. The water in the Minnesota is low this spring owing to below average precipitation during recent months. The color is due to eroded soil and the dumping of sewage by municipalities along its banks. The sewer outlet is at the west end of the bridge. At this end of the bridge marine sedimentary rock of the Paleozoic Era is exposed. This Oneota dolomite is probably half a billion years old and was made when this region was at the bottom of the sea.

Students are requested to retain these notes during the remainder of the semester. I refer to their content often. When other regions are studied, similarities with the local area are emphasized. Features of the local area are employed to show contrasts with characteristic features of other regions. The notes are included in the review of the course and are helpful in preparing the final examination.

Students find these detailed notes useful, too. Many express amazement that there is so much to observe in a landscape. Others realize what a small fraction of familiar landscapes they have been observing. As they travel, many begin to observe far more of the landscape than they used to. Descriptions of distant landscapes become meaningful, for the first time, for others. In fact, some students save their notes in anticipation of preparing field trips for their own classes.

THE NATIONAL COUNCIL AT WORK

Your State Coordinators. Herbert H. Gross, Director of Coordinators, reports that the following persons are now serving the National Council of Geography Teachers as coordinators in their respective states and provinces:

Alabama—J. M. Richardson
Arizona—George T. Renner III
Arkansas—C. M. Strack
California—John W. Reith
Colorado—Eugenia W. Tuttle
Connecticut—Pauline Schwartz
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Virginia—Charles F. Lane
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Wisconsin—Clarence Olmstead
Wyoming—(position vacant)

British Columbia—J. L. Robinson

Ontario—J. W. Hamilton

These State Coordinators are official representatives of the National Council in their respective states. In this capacity, what services do they perform? They solicit articles on geographic education for professional magazines; arrange geography sections in state and regional social studies, science, and education meetings; promote state geography councils; encourage the publication of state council bulletins; investigate state legislation as it may pertain to geographic education; help organize junior geography clubs; solicit members for the NCGT; sponsor field trips; recommend persons who could and should serve on NCGT committees; cooperate in the preparation of radio and TV programs; distribute promotional literature and monographs produced by the NCGT. The State Coordinators report annually to the Director of Coordinators.

Report of the Nominating Committee. The 1956 Nominating Committee, composed of Henry J. Warman, chairman, R. S. Funderburk, Edith P. Parker, and J. Allen Tower have submitted the following slate of officers to be presented at the Tenth Annual General Assembly of the NCGT on Saturday morning, November 24, in Trimble Hall, Claridge Hotel, Atlantic City, New Jersey:

President: Ina Cullom Robertson, State Teachers College, Valley City, North Dakota

First Vice President: Mary Viola Phillips, New Kensington Senior High School, New Kensington, Pennsylvania

Second Vice President: Henry F. Becker, Florida State University, Tallahassee, Florida

Treasurer: John H. Garland, University of Illinois, Urbana, Illinois

Executive Board: Jewell Phelps, George Peabody College for Teachers, Nashville, Tennessee; Samuel Van Valkenburg, Clark University, Worcester, Massachusetts; Gilbert F. White, University of Chicago, Chicago, Illinois.

Norman Carls, *President*
National Council of Geography Teachers

Plan to attend the annual meeting of the National Council of Geography Teachers.

Place: Claridge Hotel, Atlantic City, New Jersey
Time: November 23-24, 1956

GEOGRAPHICAL PUBLICATIONS

Clarence F. Jones and Rafael Picó, Ed. **Symposium on the Geography of Puerto Rico.** University of Puerto Rico Press, Rió Predras, P. R., 1955. xxviii and 503 pages with 186 photographs, maps and diagrams. 13 plates in folder, 59 tables, index. **$4.50.**

This well-printed and useful book describes the landforms and land use in Puerto Rico. It is concerned mainly with rural economy and does not deal with the cities. Only manufacturing establishments connected with Puerto Rico agriculture are included, for example: sugar centrales and pineapple processing plants.

The publication is an outgrowth from the Rural Land Classification Program carried out between 1949 and 1951. The work was under the direction of Clarence F. Jones, G. Donald Hudson and Rafael Picó. Field work to a total of 2020 man months was done by teams of graduate students in geography. Of these 18 used their field studies for doctoral dissertations. Most of the 18 chapters in the book were prepared by men who actively mapped selected areas in rural Puerto Rico. The results from the program of field mapping are so highly commendable that the plan could well be followed elsewhere.

Puerto Rico has a noteworthy problem in that 2,210,700 people in 1950 were living on its 3421 square miles and were mainly supported by agriculture. This is a population density of 646 persons per square mile of all land, but actually nearly 1700 persons per square mile of cultivated land. The climate is tropical and some lowlands are very productive but mountains, erosion of hill lands, occasional droughts, thin stony soil and other handicaps make tillage impossible in over half of the area. Sugar cane is far in the lead in value of agricultural production. Other export crops include tobacco, pineapples and coffee. Subsistence crops include corn, bananas and many other fruits, yams and sweet potatoes, beans, rice and various vegetables.

Highway construction and irrigation development and introduction of new plants have improved rural conditions since the days of Spanish rule. Land reform laws have led to some division of estates, but sugar remains the principal money crop and much of the fertile lowlands grow cane that is ground in 30 centrales located there. Only five centrales that handle under 8 per cent of the sugar crop are outside of the lowlands.

Type studies were made of all the varied regions of the island and the land use there is described in detail.

Recommendations made for improved use of land in Puerto Rico include fertilizer, new crops or improved species, improved credit and marketing agencies, better rural education, revision of the land tenure system, and expansion of family sized farms.

OTIS W. FREEMAN

State Teachers College
Indiana, Pennsylvania

Raymond F. Bellamy, Harrison V. Chase, Vincent V. Thursby and Sadie G. Young. **A Preface to the Social Sciences.** McGraw-Hill Book Co., Inc., New York, 1956. vii and 532 pages with illustrations, tables, references and index, **$6.50.**

The teacher who is looking for a major emphasis upon geography in this text will be disappointed. Geography appears, however, on pages 31-33 where comment is made upon man's relation to the physical and man-made environment; in Chapter 4, pages 65-94, a section devoted to conservation of natural resources; and in the three maps of

the book, page 37, "A Typical Manor Arrangement," page 103, "World Levels of Consumption," and page 232, "The Federal Reserve System."

Other subjects fare better than geography. Besides the chapter on conservation of natural resources five chapters are devoted to economics with the following topics: "The Business of Making a Living," "Bases of Economic Life in the United States," "The Productive Market and Price Systems," "Problems of a Free Enterprise Economy," and "Government Control of Economic Activities;" six chapters are given to sociology: "Human Numbers and Society," "The Origin and Evolution of the Family," "Origins of Religion," "The Role of Religion Today," "Social Changes and Functions of the Family," and "Government and Social Control"; history receives two chapters: "Background of our Culture Pattern," and 'Western European Culture Background"; education is stressed in two chapters: "Education, Its Nature and Role" and "The Educational Process and Educational Institutions"; two chapters belong to the field of government: "The State in Modern Times, The United States," and "With Liberty and Justice for All"; and the chapter for world affairs is entitled "International Affairs and International Organization."

The arrangement of the book, the clear legible printing, and the several graphs and tables encourage easy reading. Usefulness of the study is also increased by discussion questions and a reading list after each chapter.

EARL B. SHAW

State Teachers College
Worcester, Massachusetts

Beth and Garry Hogg. **The Young Traveler in Norway.** Edited by Borghild Dahl and Dale Ramsey. E. P. Dutton & Co., Inc., New York, 1955. 224 pages with illustrations, glossary and index. $3.00.

Egon Larsen. **The Young Traveler in Germany.** Edited by Georgia Lingafelt. E. P. Dutton & Co., Inc., New York, 1955. 228 pages with illustrations, glossary and index. $3.00.

David Raymond. **The Young Traveler in Italy.** Edited by William Doerflinger. E. P. Dutton & Co., Inc., New York, 1955. 224 pages with illustrations, glossary and index. $3.00.

In each book two American teenagers share experiences with contemporaries in foreign country.

Mark and Martha, whose father is an exchange professor at the University of Oslo, find everything thrilling in *Norway*—using the language; eating the elaborate "koldtbord"; learning to ski; staying at a youth hostel; crossing the Arctic Circle; taking trips on the fjords; seeing the major industries, operated by hydroelectric power, in action; and participating in holiday celebrations. The children make a vow to return to this beautiful country of hospitable people.

On going to *Germany* to study its advancement since World War II, Mr. Watkins takes along his children, Jim and Ginger. An assignment with the Globetrotter Magazine causes the youngsters to be left for a while "on their own" in Hamburg, the city built on piles. All are amazed at the ultra-modern buildings, an indication of the speed of German rehabilitation. While they are sorry to leave Germany, the pictures taken with Mr. Watkins' German-made Leica aid them upon return to recapture the spirit of the trip.

In *Italy* many pleasant memories are stored in the minds and hearts of Jerry and Nancy Manning, who tour the country with their artist parents and younger brother. For the two youths the most remarkable experience is their search for The Holy Grail.

When Jerry seems uncertain that it really is the cup used at the Last Supper, his father comments, "The point is that you found what you were looking for and that you learned something about Genoa in searching for it. That's the fun of travel; not just seeing things but finding out how and why they came about. Travel becomes an adventure when you do that."

All three books are replete with realistic line sketches and significant photographs. The pronunciations, glossary, index, and reference map aid in understanding the language and thoughts of the natives as well as in following the travelers.

Because of their clear narration, the reader is enabled to gain a true concept of the people, their land, and their way of life; thus these books would be an asset to any junior or senior high school library.

Estella Wheeler, *teacher*
Harry Shuemaker, *student*

Manual High School
Peoria, Illinois

Gerhart H. Seger. **Life in Europe: Germany.**
Vincent H. Malmstrom and Ruth M. Malmstrom. **Life in Europe: Norway.**
W. de Groot van Embden. **Life in Europe: The Netherlands.** The Fideler Co., Grand Rapids, Michigan, 1955. Each of the above books are 160 pages with photographs, illustrations, maps, glossary, and index. **$3.28.**

These books are a part of a series called *Life in Europe*. Each book is written by a different author or authors who know the country well, and have been able to highlight both the physical and cultural features in the country. Altho these books are written for the elementary child, grades 3 thru junior high, the content is of interest to people of all ages of maturity. The content is presented from the point of view of people living and working in their particular location with special emphasis on physical and cultural features which the people use as resources. In addition to the brief history of the people, each book treats such cultural aspects as home life and customs, education, arts and crafts, sports and recreation, and government.

Altho the format of each book has a similarity, it has been designed to suggest the particular country and is especially attractive and fairly makes the reader want to open the book to see what is inside. Once the reader opens the book he cannot help but be attracted to the excellent photographs. Each photograph is either half or full page size and carries a double caption which motivates the reader to want to read more about the country.

The text is most readable for young readers. An excellent glossary provides definition of foreign words which greatly enhances the reading interest and contributes to vocabulary.

The country with its physical and cultural features, and especially the people living and working in the real landscape are presented with such real basic facts, so that the reader can arrive at an understanding and appreciation for the people living there. These books are a contribution to elementary school literature and might well be used as supplementary readers, if not texts, in elementary classrooms and libraries. This series of books can further be recommended for the young reader's personal library, and adults may enjoy reading these books with their children.

Mamie L. Anderzhon

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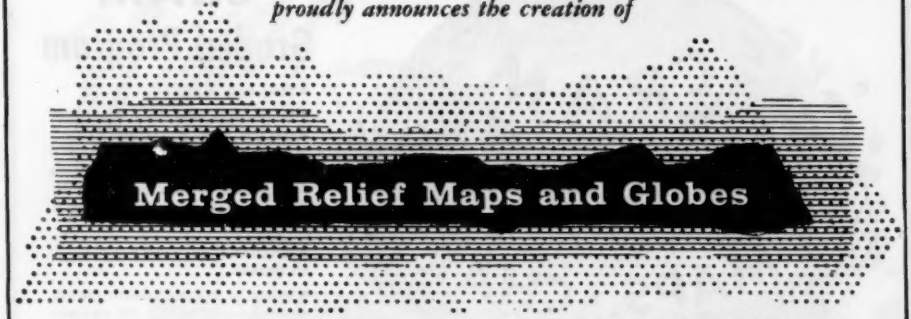

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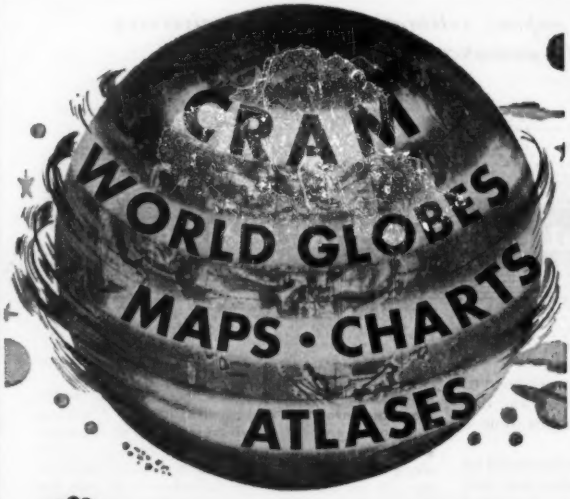

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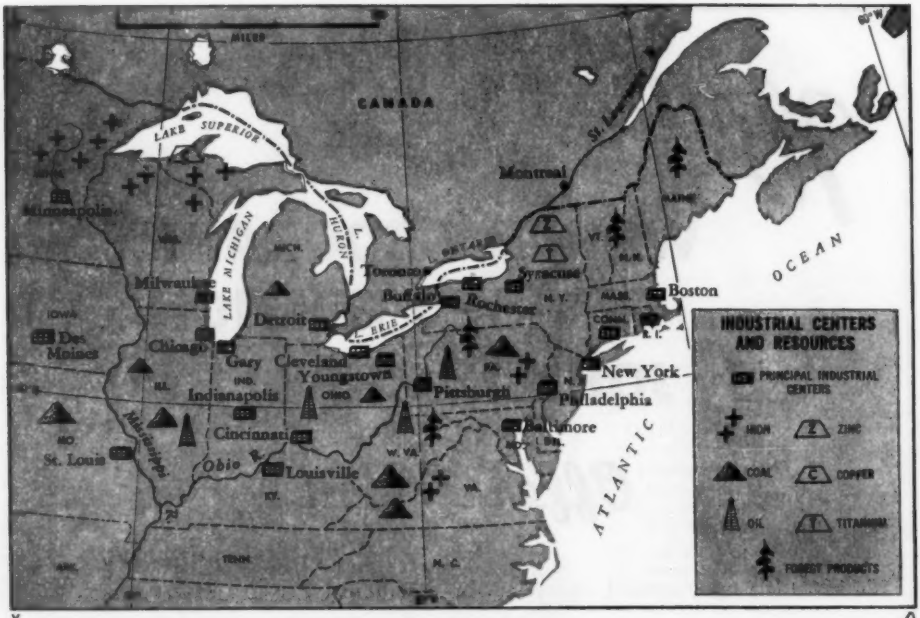

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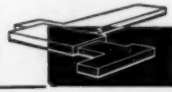

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